

# Service Manual

ORDER NO.  
**RRV 1575**

STEREO TURNTABLE

# PL-225

- Refer to the service manual ARP1722 for PL-225/WEM.

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PL-225		
WEM8	O	AC220 - 240V	
WB8	O	AC220 - 240V	

- Although PL-225/WEM8 and PL-225/WEM are different in model number, they have the same service parts.
- Although PL-225/WB8 and PL-225/WB are different in model number, they have the same service parts.

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# Service Manual

 ORDER NO.  
ARP1722

STEREO TURNTABLE

**PL-225** WEM, WB, RD  
**PL-225-S** WEM

- Refer to the service manual ARP1552, PL-223/WEM type.
- This manual is applicable to the PL-225/WEM, WB, RD and PL-225-S/WEM types.

Type	Applicable model			Power requirement	Export destination
	PL-223	PL-225	PL-225-S		
WEM	○	○	○	AC220V-240V	European continent
WB	○	○	—	AC220V-240V	United kingdom
RD	○	○	—	AC110V-127V, 220V-240V	General export

- The PL-225-S/WEM type is the same as the PL-225/WEM type except for the color.

# CONTRAST OF MISCELLANEOUS PARTS

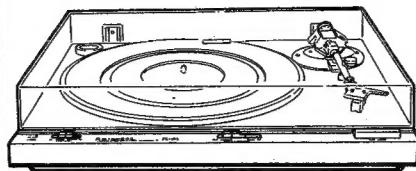
## NOTES:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The PL-225/WEM, WB, RD and PL-225-S/WEM types are the same as the PL-223/WEM type with the exception of the following sections.

Mark	Symbol & Description	Part No.					Remarks
		PL-223/ WEM	PL-225/ WEM	PL-225/ WB	PL-225/ RD	PL-225-S/ WEM	
	Front name plate	PAM1197	.....	.....	.....	.....	
	Screen	.....	PAM1278	PAM1278	PAM1278	PAM1278	
	Packing case	PHG1212	PHG1328	PHG1328	PHG1329	PHG1330	
	Operating instructions (English, German, French, Italian, Dutch, Spanish, Swedish, Portuguese)	PRE1057	PRE1093	.....	.....	.....	
	Operating instructions (English)	.....	.....	PRB1093	PRB1093	.....	
	Operating instructions (Spanish)	.....	.....	.....	PRC1007	.....	
	Operating instructions (German)	.....	.....	.....	.....	PRC1015	
	AC Power cord	PDG1012	PDG1012	PDG1023	PDG1014	PDG1012	
	Line voltage selector switch (AC110V-127V, AC220V-240V)	.....	.....	.....	PSB1003	.....	
	Panel	PNW1366	PNW1366	PNW1366	PNW1391	PNW1417	
	AS Knob	PAC1265	PAC1265	PAC1265	PAC1265	PAC1368	

# Service Manual


 ORDER NO.  
 ARP1552

STEREO TURNTABLE

## PL-223 PL-223-S

MODEL PL-223 COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Applicable model		Power requirement	Destination
	PL-223	PL-223-S		
WEM	○	○	AC 220V-240V	European continent
WB	○	—	AC220V-240V	United Kingdom
RD	○	—	AC110V-127V, AC220V-240V	General export

- This manual is applicable to the PL-223/WEM, WB, RD and PL-223-S/WEM types.
- As to the WB and RD types, refer to page 17.
- The PL-223-S is same as the PL-223 except the color.
- Ce manual pour le servise comprend les explications en français de réglage.
- Este manual de servicio trata del método ajuste escrito en español.

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# 1. SPECIFICATIONS

**PHONOGRAPH MOTOR AND PLATTER**

Motor type ..... DC servo motor  
 Drive system ..... Belt drive system  
 Speed of rotation ..... 2 speeds: 33-1/3, 45 rpm  
 Wow and Flutter ..... No more than 0.06% WRMS  
 No more than 0.09% WTD Peak (DIN)  
 S/N ratio ..... More than 68 dB (DIN-B)  
 Platter ..... Diameter ø295 mm, aluminium die-cast

**TONE ARM**

Type ..... Static balance straight pipe arm

**SUPPLIED CARTRIDGE**

Type ..... MM type  
 Replacement stylus ..... PN-240  
 Stylus ..... 0.6 mil diamond  
 Output voltage ..... 2.5 mV (1 kHz, 5.0 cm/s, LAT. Peak)  
 Suitable stylus pressure ..... 1.5 – 2.5 g  
 Frequency response ..... 10 Hz – 30,000 Hz  
 Installment ..... Universal type  
 Cartridge weight ..... 4 – 8 g

**POWER SUPPLY, OTHER**

Power requirements  
 European, U.K., Australian models ..... a.c. 220 – 240 Volts –  
 , 50/60 Hz  
 U.S., Canadian models ..... ~ AC 120 V, 60 Hz  
 Other destination  
 models ..... a.c. 110 – 127 Volts/220 – 240 Volts ~  
 (switchable) | 50/60 Hz  
 Power consumption ..... 2W  
 External dimensions ..... 420 (W) x 95 (H) x 356 (D) mm  
 16-9/16 (W) x 3-3/4 (H) x 14 (D) in  
 Netweight ..... 2.8 kg (6 lb 3 oz)

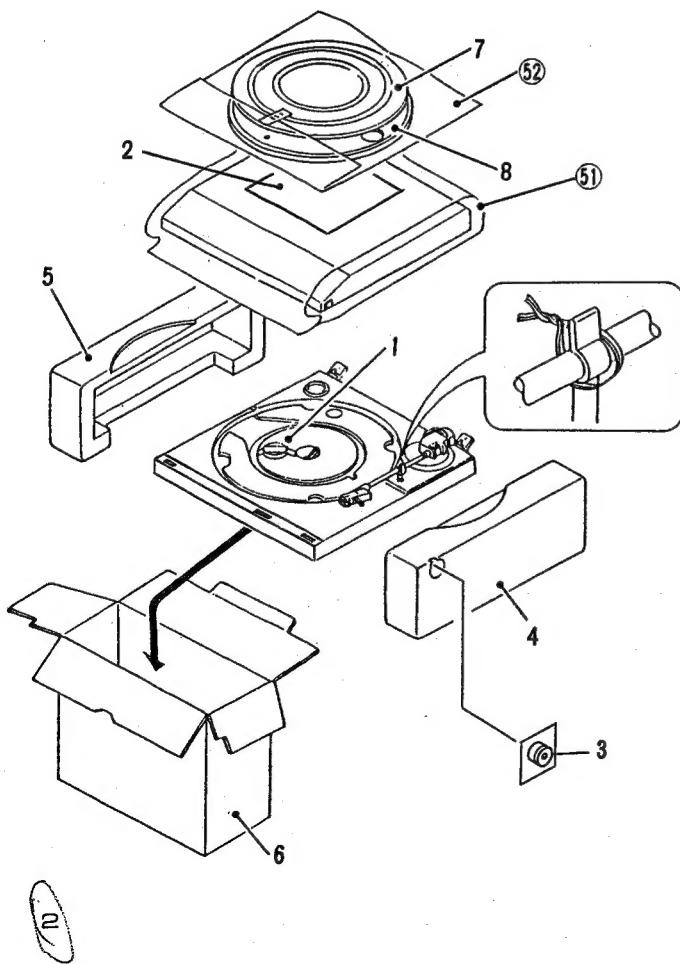
**SUPPLIED ACCESSORIES**

EP adaptor ..... 1  
 Operating instructions ..... 1

**NOTE:**

Specifications and design subject to possible modification without notice, due to improvements.

# 2. PACKING

**Parts List of Packing**

Mark	No.	Parts No.	Description
1	PEC1002		45 adaptor
2	PRE1057		Operating instructions (English, German, French, Italian)
3	PXA1133		Weight assembly
4	PHA1063		Protector (R)
5	PHA1064		Protector (L)
6	PHG1212		Packing case (BLACK)
	PHG1220		Packing case (SILVER)
7	PEB1059		Turntable sheet
8	PNR1025		Turntable
51			Mirror mat
52			Vinyl bag

### 3. EXPLODED VIEWS AND PARTS LIST

#### NOTES:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
- ★★ GENERALLY MOVES FASTER THAN ★  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

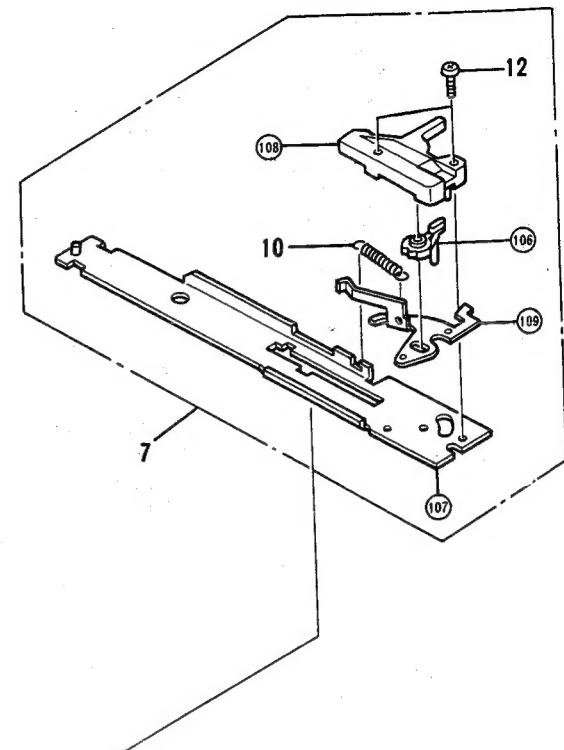
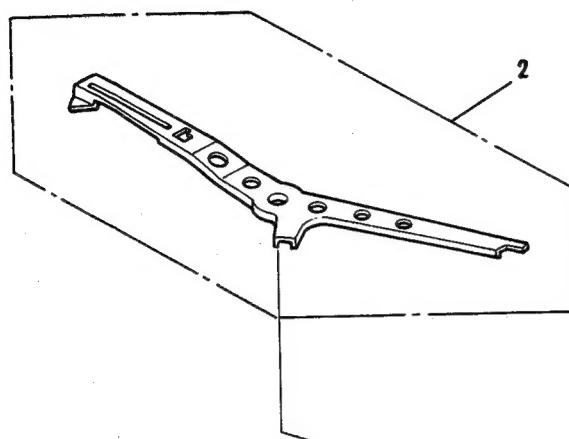
#### 3.1 EXTERIOR

##### Parts List of Exterior

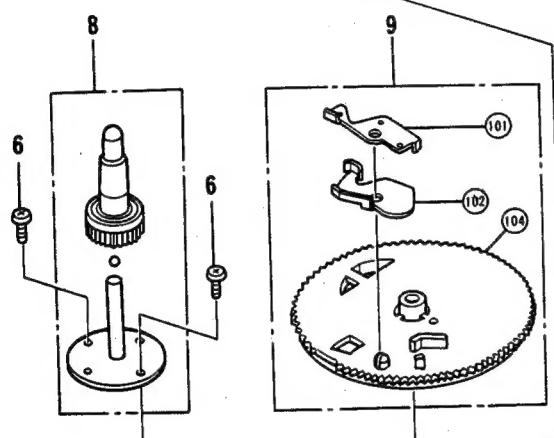
Mark	No.	Parts No.	Description	Mark	No.	Parts No.	Description
	1	PXA1121	PU cord assembly		36	YP40FBK	Nut
	2	.....	.....		37	BPZ26P120FZK	Screw (2.6 x 12)
★	3	PPD1017	Arm assembly		38	PAM1197	Front name plate
★	4	PEB1059	Turntable sheet		39	PNW1366	Panel (BLACK)
	5	PNR1025	Turntable			PNW1417	Panel (SILVER)
★★	6	PEB1060	Belt	40	.....	.....	
	7	PBA-112	Screw		41	.....	.....
	8	PEB1063	Rubber		42	PAC1268	S/S button
	9	PBK1033	R clip		43	PEC1002	45 adaptor
★	10	PNW1367	Arm rest		44	PYY1047	Motor assembly
	11	PBF-020	Washer	▲	45	PDG1012	AC power cord
	12	PBH1057	AS action spring		46	PBH1056	S/S spring
	13	PBH1046	EV spring		47	PBK1043	AS plate spring
	14	PNW1290	EV sheet		48	.....	.....
	15	IPC30P100FMC	Screw (3 x 10)		49	PAC1265	AS button (BLACK)
	16	PBH1061	EV lever spring			PAC1297	AS button (SILVER)
	17	PBH1051	Elevation cam spring		50	PAC1275	EV/SP button
	18	PED-051	Washer		51	PNW1319	Stylus cover
	19	PNW1371	Elevation cam		52	PXV-950	Cartridge
	20	PXT1017	EV plate spring (D) unit		53	PMD40P080FMC	Screw
	21	WT31D054D050	Washer		101	.....	SW P.C. board assembly
	22	PXA1148	PU plate (B) assembly		102	.....	Sub-panel assembly
	23	.....	.....		103	.....	PU plate spring
	24	.....	.....		104	.....	.....
	25	WC40FMC	Washer		105	.....	PU plate (A)
	26	YS40FBT	Washer		106	.....	PU plate (B)
	27	IPC30P100FMC	Screw		107	.....	PU spring washer
	28	IPC30P290FMC	Screw (3 x 29)		108	.....	EV rod
	29	PBA-159	Screw		109	.....	Cut rod
	30	.....	.....		110	.....	Under base
	31	PSZ30P060FMC	Screw (3 x 6)		111	.....	Power supply P.C. board assembly
	32	PNV1009	Dust cover		112	.....	.....
	33	PXA1132	Hinge assembly		113	.....	Rubber
	34	.....	.....		114	.....	Motor pully
	35	PEB1061	Insulator		115	.....	Motor
					116	.....	Trans cover
					117	.....	AS plate

## 3.2 SUB-PANEL ASSEMBLY

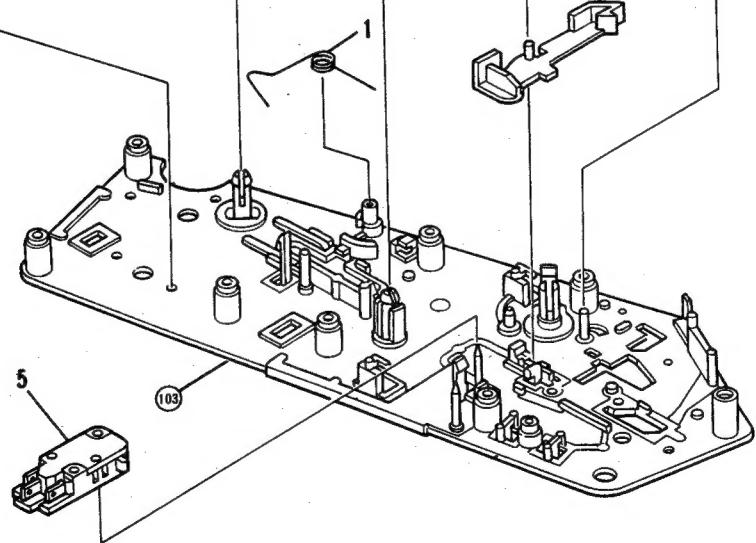
A



B



C



D

1 2 3

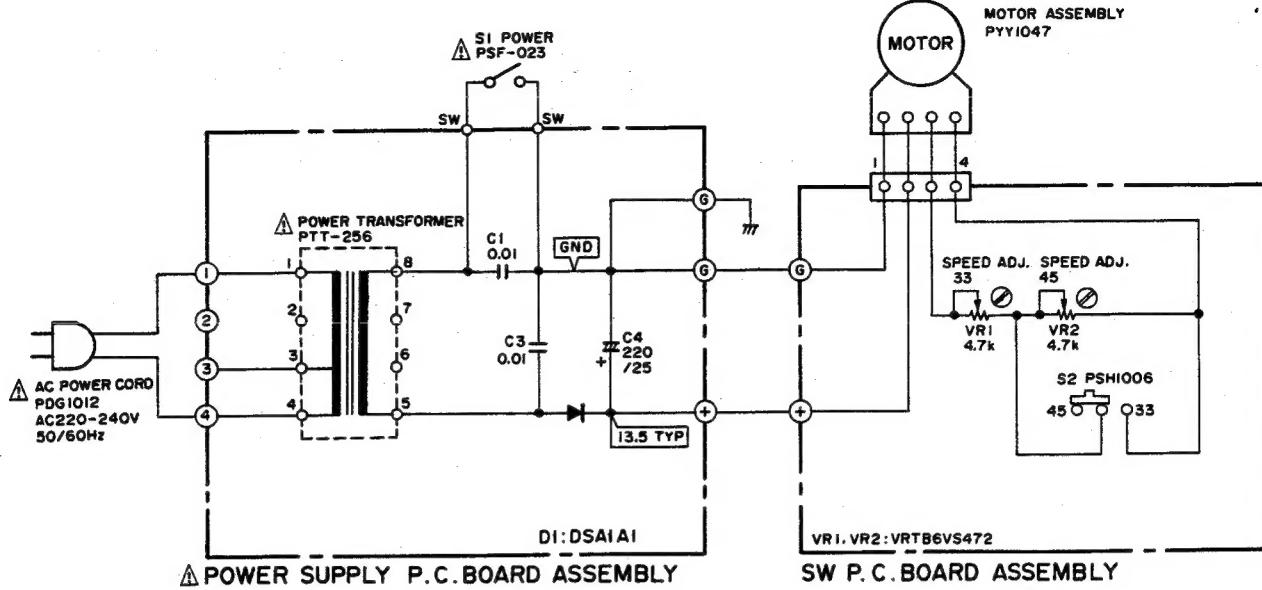
## Parts List of Sub-panel

Mark	No.	Parts No.	Description
	1	PBH1063	Lock spring
	2	PNB1098	Detector lever
	3	PNW1346	Switch locker
	4	PNW1314	Switch lever
△★	5	PSF-023	Microswitch (POWER,S1)
	6	PSZ30P060FMC	Screw
	7	PXA1112	Drive plate assembly
	8	PXA1111	Shaft assembly
	9	PYY1046	Cam assembly
	10	PBH-224	Start plate spring
	11	.....	.....
	12	PSZ30P100FMC	Screw
	101		Starting plate
	102		Signal plate
	103		Sub-panel
	104		Cam
	105		.....
	106		Leed-in ratch
	107		Drive plate unit
	108		EV Cam
	109		Start plate

## 4. SCHEMATIC DIAGRAM

A

A



B

B

### 1. RESISTORS:

Indicated in  $\Omega$ , 1/8W & 1/4W,  $\pm 5\%$  tolerance unless otherwise noted  
 $k$ ;  $k\Omega$ ,  $M$ ;  $M\Omega$ , (F);  $\pm 1\%$ , (G);  $\pm 2\%$ , (K);  $\pm 10\%$ , (M);  
 $\pm 20\%$  tolerance

### 2. CAPACITORS:

Indicated in capacity ( $\mu F$ )/voltage (V) unless otherwise noted  
 $p$ ;  $pF$ . Indication without voltage is 50V except electrolytic capacitor.

### 3. VOLTAGE, CURRENT:

$\square$ ; DC voltage (V) at no input signal  
Value in ( ) is DC voltage at rated power.  
mA; DC current at no input signal

### 4. OTHERS:

$\rightarrow$ ; Signal route.  
 $\odot$ ; Adjusting point.

The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.  
\* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

### SWITCHES:

S1: POWER      ON - OFF  
S2: SPEED      33-1/3 rpm - 45 rpm

The underlined indicates the switch position.

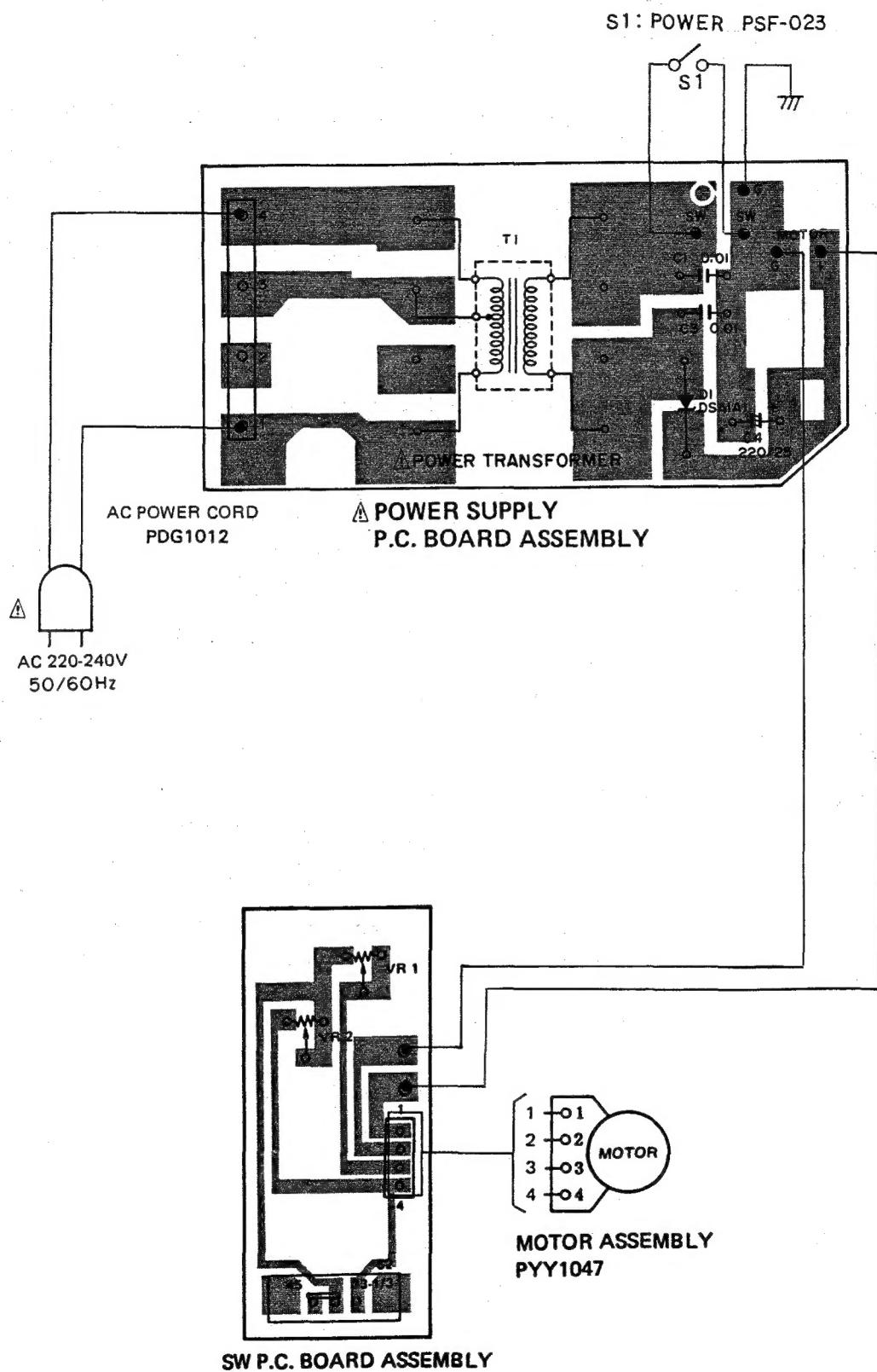
C

C

D

D

## 5. P.C. BOARDS CONNECTION DIAGRAM



## 6. ELECTRICAL PARTS LIST

### NOTES:

- Parts without part number cannot be supplied.
- Parts marked by “◎” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The △ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
- ★★ GENERALLY MOVES FASTER THAN ★  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	$56 \times 10^1$	561.....	RD1/4PS 5 6 1 J
47kΩ	$47 \times 10^3$	473.....	RD1/4PS 4 7 3 J
0.5Ω	0R5.....		RN2H 0 5 K
1Ω	010.....		RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	$562 \times 10^3$	5621.....	RN1/4SR 5 6 2 1 F
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### Miscellaneous Parts

Mark	Symbol & Description	Part No.
△	Power supply P.C. board assembly	Non supply
	SW P.C. board assembly	Non supply
	PU cord assembly	PXA1121
★★	Motor assembly	PYY1047
△	AC power cord	PDG1012

### Power supply P.C. board assembly

### SEMICONDUCTOR

Mark	Symbol & Description	Part No.
★	D1	DSA1A1

### CAPACITORS

Mark	Symbol & Description	Part No.
	C4 (0.22/25V)	CEA221M25L
	C1,C3 Ceramic capacitor	CKDYF103Z50

### COIL, TRANSFORMER

Mark	Symbol & Description	Part No.
△	T Power transformer	PTT-256

### SW P.C. board assembly

### SWITCH

Mark	Symbol & Description	Part No.
	S2 Slide switch	PSH1006

### RESISTORS

Mark	Symbol & Description	Part No.
	VR1,VR2 (4.7kΩ) Semi-Fixed resister	VRTB6VS472

### PU cord assembly (PXA1121)

No parts are supplied with the PU cord assembly.

## 7. ADJUSTMENTS

### 7.1 MOTOR ADJUSTMENTS

Place the record player on blocks as shown in Fig. 7-1 and adjust the motor from the under base.

1. Turn the arm elevation lever up to raise the arm.
2. Place a strobo sheet on the turntable, move the arm to the turntable side, and rotate the turntable.
3. Adjust semifixed resistors VR1 and VR2 of the motor assembly so the 33-1/3 rpm and 45 rpm strobo of the strobo sheet appears to the static.
4. First adjust VR1 for 45 rpm and then the adjust VR2 for 33-1/3 rpm.

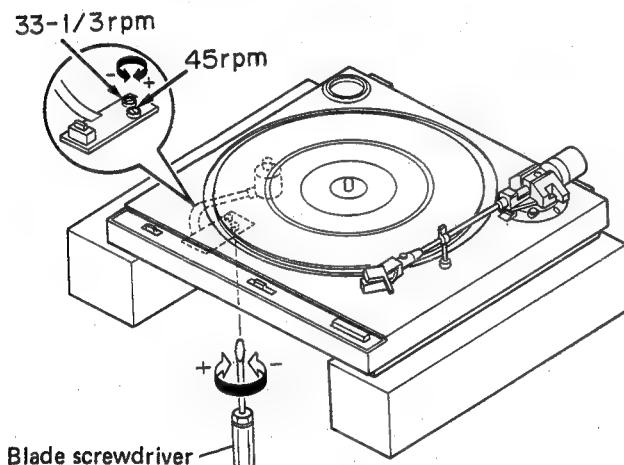


Fig. 7-1 Motor adjustment

### 7.2 AUTO-RETURN POSITION ADJUSTMENT

When the auto-return position is too near or too far, make the following adjustments.

1. Check the stylus landing position. If the stylus does not land at the correct position, adjust the landing position.
2. Set the arm elevation switch to UP and turn the auto-return adjustment screw fully counter-clockwise.
3. Move the tonearm as far as it will go toward the center.
4. When the auto-return adjustment screws is turned slowly clockwise, the tonearm will begin to move toward the center.

5. Stop turning the adjustment screw at the point at which there is a space of 32mm between the stylus of the cartridge and the center shaft. (Fig. 7-2)
6. After adjustment, check that auto-return is performed correctly and that the stylus landing position is correct.

### 7.3 ARM ELEVATION HEIGHT ADJUSTMENT

1. Press the arm elevation switch to move the arm up.
2. Turn the height adjustment screw on the side of the arm elevation unit with a Phillips screwdriver so that the distance between the record and the stylus is  $7 \pm 2$ mm. The arm moves up when the screw is turned counterclockwise.

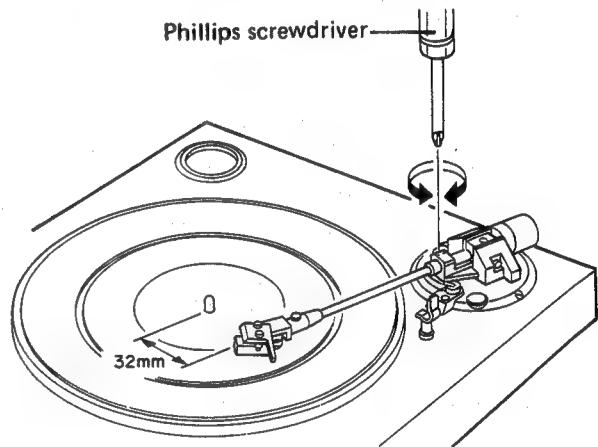


Fig. 7-2 Auto-return position adjustment

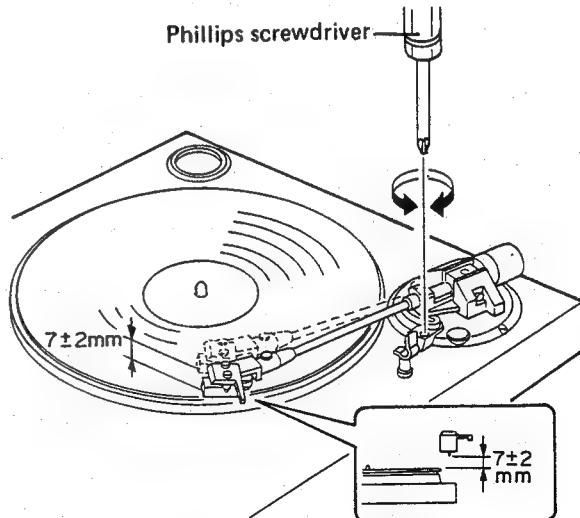


Fig. 7-3 Arm elevation adjustment

## 7. RÉGLAGE

### 7.1 REGLAGE DU MOTEUR

Placer le tourne-disque sur des blocs, comme est montré dans la Fig. 7-1 et régler le moteur depuis le dessous.

1. Tourner le levier de relevage du bras pour soulever le bras de lecture.
2. Placer une feuille stroboscopiques sur le tourne-disques; déplacer le bras jusqu'au côté du tourne-disque et le faire tourner.
3. Régler les résistances demi-fixes VR1 et VR2 de l'ensemble du moteur, jusqu'à ce que la feuille stroboscopique apparaisse immobile en 33-1/3 et 45 tr/min.
4. D'abord régler VR1 pour avoir la vitesse de 45 tr/min, ensuite, régler VR2 pour 33-1/3 tr/min.

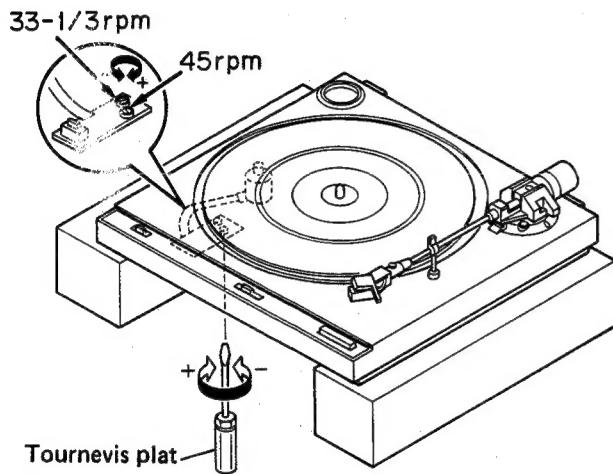


Fig. 7-1 Réglage du moteur

### 7.2 REGLAGE DE LA POSITION DE RETOUR AUTOMATIQUE

Réaliser les réglages suivants lorsque la position de retour automatique se produit trop près ou loin.

1. Contrôler la position de descente de la pointe de lecture. Si la pointe de lecture ne descend pas sur la position correcte, ajuster la position de descente.
2. Régler la touche de relevage du bras sur la position "UP" et tourner la vis de réglage du retour automatique à fond dans le sens contraire des aiguilles d'une montre.
3. Déplacer le bras de lecture le plus possible vers l'intérieur.
4. Lorsque la vis de réglage du retour automatique est tournée lentement dans le sens des aiguilles d'une montre, le bras de lecture commence à se déplacer vers le centre.

5. Arrêter de tourner la vis de réglage sur le point pour lequel il y a un écart de 32mm entre la pointe de lecture et l'axe central. (Fig. 7-2)

6. Après le réglage, vérifier que le retour automatique se réalise correctement et que la position de descente de la pointe est correcte.

### 7.3 REGLAGE DE L'ELEVATION DU BRAS

1. Appuyer sur le commutateur d'élévation du bras pour déplacer le bras vers le haut.
2. Tourner la vis du côté du bloc d'élévation du bras au moyen d'un tournevis cruciforme, de telle sorte que la distance entre le disque et la pointe de lecture soit de  $7\pm 2$ mm. Le bras se déplace vers le haut lorsque l'on tourne la vis dans le sens contraire des aiguilles d'une montre.

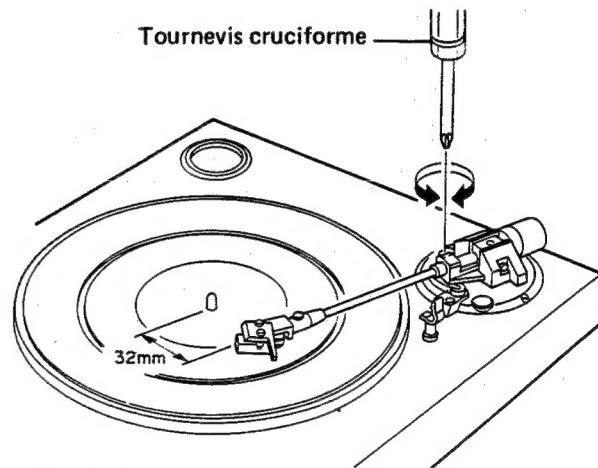


Fig. 7-2 Réglage de retour automatique

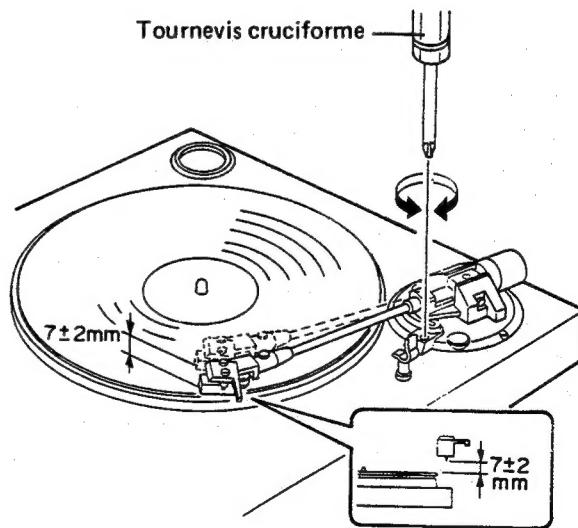


Fig. 7-3 Réglage de l'élévation du bras

## 7. AJUSTE

### 7.1 AJUSTES DEL MOTOR

Poner el giradiscos sobre bloques como se muestra en la Fig. 7-1 y ajustar el motor desde abajo.

1. Girar la palanca de elevación del brazo para elevar el brazo fonocaptor.
2. Poner una lámina estroboscópica sobre el plato, mover el brazo hacia el plato y hacer girar el plato.
3. Ajustar los resistores semifijos VR1 y VR2 del conjunto del motor de modo que el estrobo de 33-1/3 y 45 rpm y la lámina estroboscópica parezcan parados.
4. Primero ajustar VR1 a 45 rpm luego VR2 a 33-1/3 rpm.

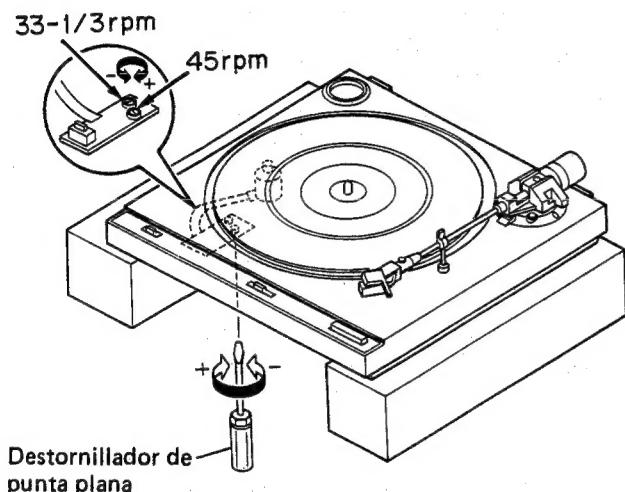


Fig. 7-1 Ajuste del motor

### 7.2 AJUSTE DE RETORNO AUTOMATICO

Cuando la posición de retorno automático esté demasiado cerca o demasiado lejos, efectuar los ajustes siguientes.

1. Comprobar la posición de descenso de la aguja. Si la aguja no desciende en la posición correcta, ajustar la posición de descenso.
2. Ajustar el interruptor de elevación del brazo en la posición UP y girar el tornillo de ajuste de retorno automático completamente hacia la izquierda.
3. Desplazar el brazo fonocaptor hacia el centro.
4. Cuando se giran lentamente los tornillos de ajuste de retorno automático hacia la derecha, el brazo fonocaptor empezará a moverse hacia el centro.

5. Dejar de girar el tornillo de ajuste en el punto en el que haya un espacio de 32mm entre la aguja de la cápsula y el eje central. (Fig. 7-3)
6. Despues del ajuste, comprobar que la operación de retorno automático se efectúe correctamente y que la posición de descenso de la aguja sea la correcta.

### 7.3 AJUSTE DEL BRAZO DE FONOCAPTOR

1. Presionar el conmutador de elevación del brazo de fonocaptor para desplazar el brazo hacia arriba.
2. Girar el tornillo de ajuste en el lado de la unidad de elevación del brazo por medio de un destornillador Phillips, de modo que la distancia entre el disco y la aguja sea de  $7\pm2$ mm. El brazo se desplaza hacia arriba girando el tornillo en sentido contrario al de las agujas del reloj.

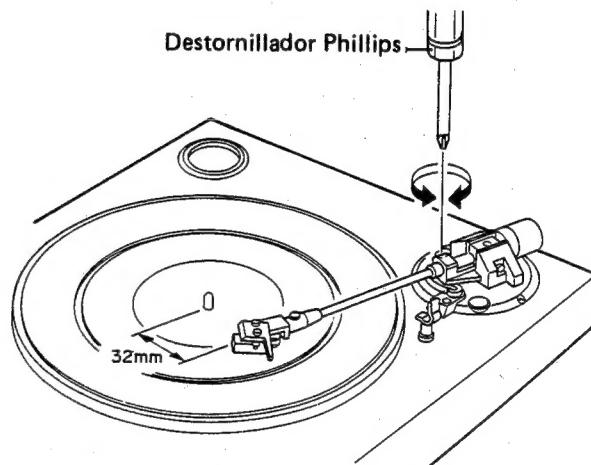


Fig. 7-2 Ajuste de retorno automático

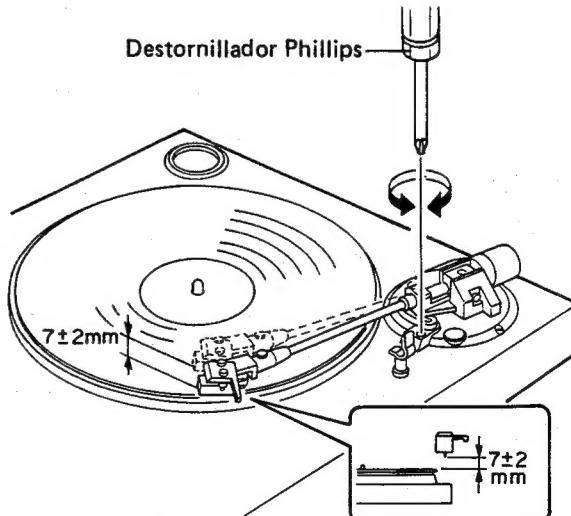


Fig. 7-4 Ajuste del brazo de fonocaptor

## 8. FOR WB, RD TYPES

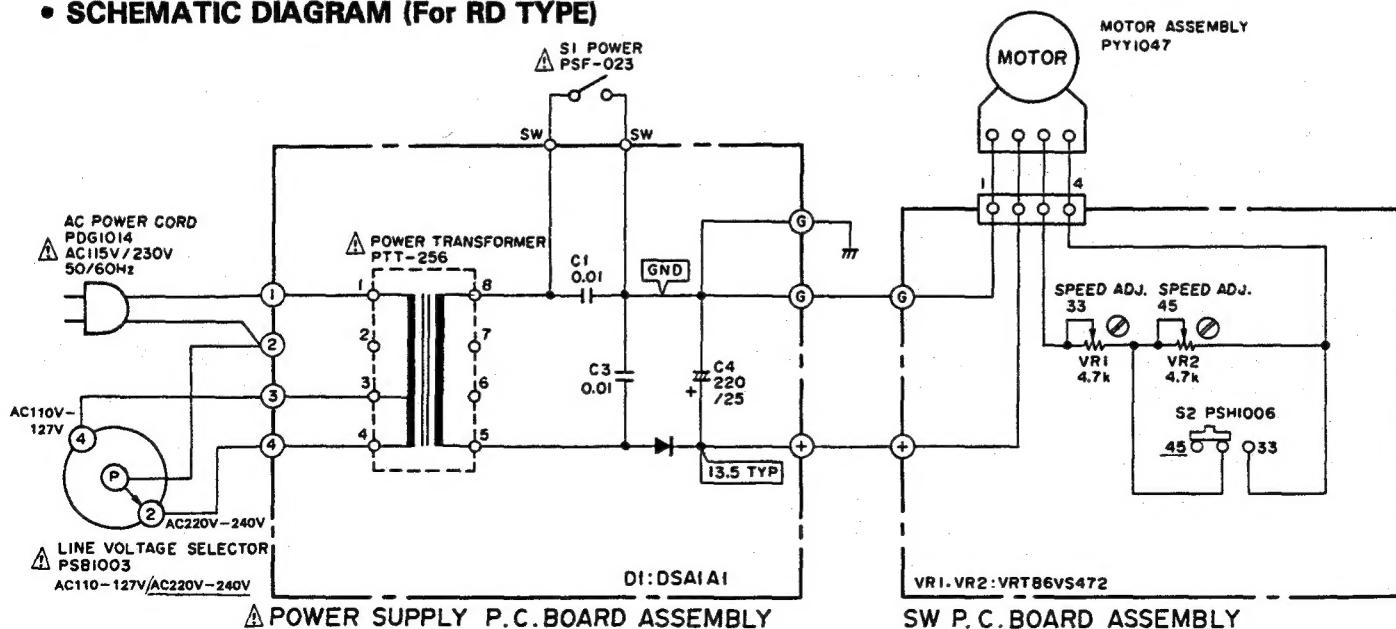
### NOTES:

- Parts without part number cannot be supplied.
- The **⚠** mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
- **★★ GENERALLY MOVES FASTER THAN ★**  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by “**◎**” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The PL-223-S/WEM and PL-223/WB, RD types are the same as the PL-223/WEM type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		PL-223/ WEM type	PL-223-S/ WEM type	PL-223/ WB type	PL-223/ RD type	
<b>⚠</b>	AC power cord	PDG1012	PDG1012	PDG1023	PDG1014	
	Operating Instructions (English, German, French, Italian)	PRE1057	PRE1057	.....	.....	
	Operating Instructions (English)	.....	.....	PRB1055	PRB1055	
	Operating Instructions (Spanish)	.....	.....	.....	PRC1007	
	Binder	.....	.....	.....	PEC-030	
	Packing case	PHG1212	PHG1220	PHG1212	PHG1216	
	Panel	PNW1366	PNW1417	PNW1368	PNW1391	
<b>⚠ ★★</b>	Line voltage selector (AC110-127V, AC220V-240V)	.....	.....	.....	PSB1003	
	AS button	PAC1265	PAC1297	PAC1265	PAC1265	

### • SCHEMATIC DIAGRAM (For RD TYPE)



1

2

3

1

1

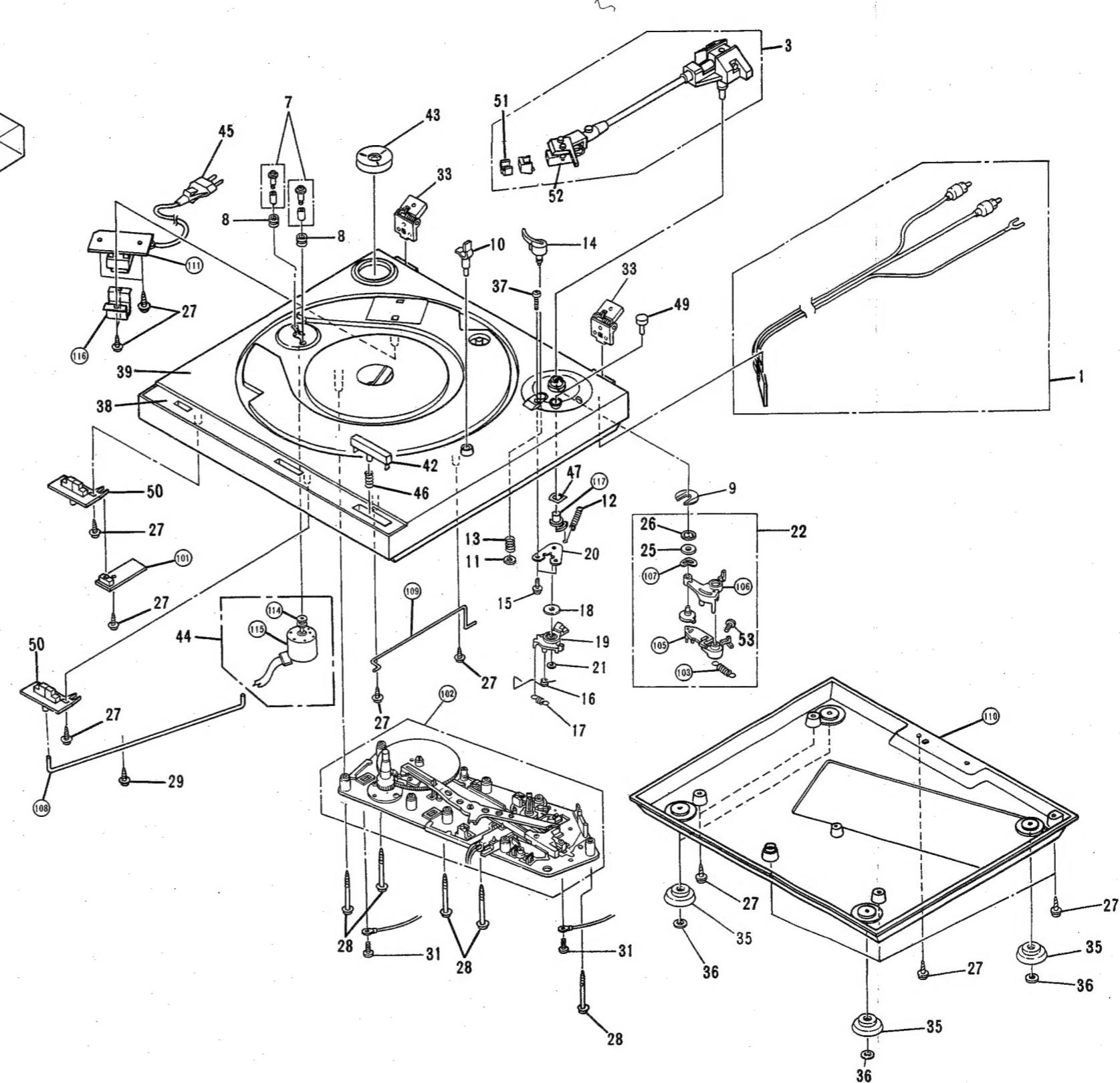
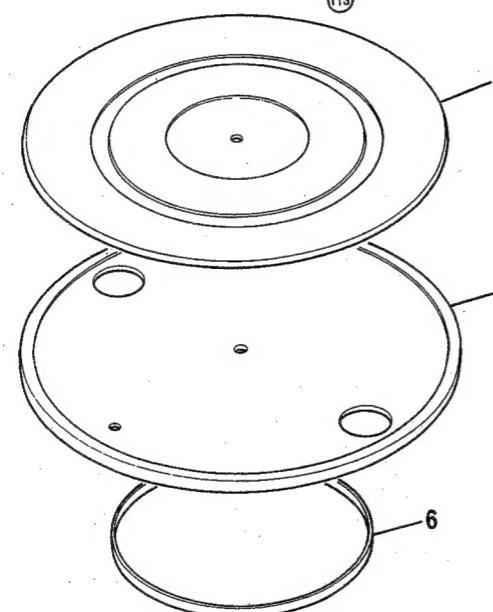
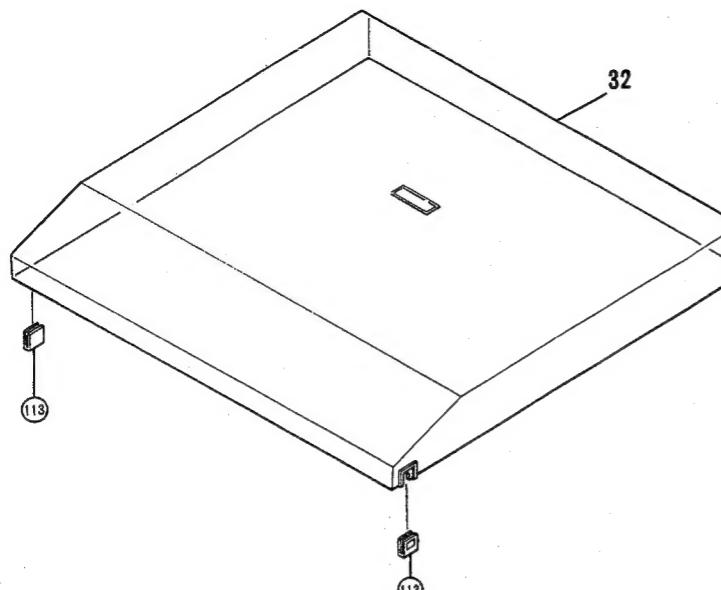
## EXTERIOR

A

B

C

D



1

2

三

6